CLAIMS:

1. A computer tomography method having the following steps:

a) generation by a radiation source (S) of a bundle of rays (4) that passes though an object moving periodically,

b) production of a relative movement between the radiation source (S) on the one hand and the object on the other hand, which relative movement comprises rotation about an axis of rotation (14),

c) acquisition, with a detector unit (16) and during the relative movement, of measured values that depend on the intensity in the bundle of rays (4) on the far side of the object,

d) sensing of a movement signal (21) dependent on the movement of the object with a movement-sensing means (8) and determination of cyclically repeated phases of movement with the help of the movement signal (21) sensed,

e) reconstruction of a plurality of intermediate images of a region of an object, each intermediate image being reconstructed with measured values that were acquired while the object was in a different phase of movement, thus enabling a phase of movement to be assigned to each intermediate image,

f) determination of the phase of movement in which there was least movement of the object in the region, by determining the intermediate image having the fewest motion artifacts in the region,

g) reconstruction of a computer tomographic image of the region from measured values that were acquired while the object was in the phase of movement in which there was least movement of the object in said region, the reconstruction parameters that are used in this case differing from the reconstructions parameters used to reconstruct the intermediate images.

2. A computer tomography method as claimed in claim 1, characterized in that the intermediate images in step e) are reconstructed with a lower spatial resolution than the computer tomographic image to be reconstructed in step g).

3. A computer tomography method as claimed in claim 1, characterized in that the region of the object that is to be analyzed (the FOV) is divided into a plurality of sub-regions and in that steps e) to g) are performed for each sub-region.

4. A computer tomography method as claimed in claim 1, characterized in that, with the help of a motion-artifact metric, there is determined for each intermediate image a motion-artifact value by applying the motion-artifact metric solely to measured values from the particular intermediate image, and in that the intermediate image having the lowest motion-artifact value is determined to be the intermediate image having the fewest motion artifacts.

5. A computer tomography method as claimed in claim 4, characterized in that the motion-artifact value of an intermediate image is the mean of gradients of image values in the intermediate image in the direction of an axis of rotation.

6. A computer tomography method as claimed in claim 5, characterized in that the gradients are weighted before a mean thereof is formed, in which case a gradient that is situated in an overlap region of the object, through which region rays having acquisition times situated in different periods pass, is given a higher weight than a gradient that is not situated in an overlap region.

7. A computer tomograph for carrying out the method claimed in claim 1, having

- a radiation source (S) for generating a bundle of rays (4) that passes through an object moving in a cycle,
- a drive arrangement (2, 5) for producing a relative movement between the radiation source (S) on the one hand and the object on the other hand, which relative movement comprises a rotation about an axis of rotation (14),
- a detector unit (16) for acquiring, during the relative movement, measured values that depend on the intensity in the bundle of rays (4) on the far side of the object,
- a movement-sensing means (8), in particular an electrocardiograph (8), for the sensing of a movement signal (21) dependent on the movement of the object with a movement-sensing means (8),
- a reconstructing unit (10) for reconstructing a computer tomographic

image of the object from the measured values,

- a control unit (7) for controlling the radiation source (S), the drive arrangement (2, 5), the detector unit (16), the movement-sensing means (8) and the reconstructing unit (10) in the following steps:

a) generation by the radiation source (S) of a bundle of rays (4) that passes though an object that moves in a periodically,

b) production of a relative movement between the radiation source (S) on the one hand and the object on the other hand, which relative movement comprises rotation about an axis of rotation (14),

c) acquisition, with the detector unit (16) and during the relative movement, of measured values that depend on the intensity in the bundle of rays (4) on the far side of the object,

d) sensing of a movement signal (21) dependent on the movement of the object with the movement-sensing means (8) and determination of periodically repeated phases of movement with the help of the movement signal (21) sensed,

e) reconstruction of a plurality of intermediate images of a region of the object, each intermediate image being reconstructed with measured values that were acquired while the object was in a different phase of movement, thus enabling a phase of movement to be assigned to each intermediate image,

f) determination of the phase of movement in which there was least movement of the object in the region, by determining the intermediate image having the fewest motion artifacts in the region,

g) reconstruction of a computer tomographic image of the region of the object from measured values that were acquired while the object was in the phase of movement in which there was least movement of the object in said region, the reconstruction parameters that are used in this case differing from the reconstruction parameters used to reconstruct the intermediate images.

8. A computer program for a control unit (7) for controlling a radiation source (S), a drive arrangement (2, 5), a detector unit (16), and a reconstructing unit (10) of a computer tomograph for carrying out the method claimed in claim 1.